What is claimed is:

1. A method for processing film mammograms, said method including the steps of:

scanning a set of film mammograms, thereby to obtain digitized images of the film mammograms;

storing the digitized images in a memory;

preparing the digitized images for display by performing an analysis of the images in order to determine if they are properly adapted for a pre-selected presentation scheme; and

bringing any improperly adapted images into their proper presentation scheme before displaying the images.

2. A method according to claim 1 wherein said step of preparing includes the step of determining whether the digitized images are properly oriented.

3. A method according to claim 2 wherein said step of determining includes determining whether a digitized image has been inadvertently flipped.

4. A method according to claim 2 wherein said step of determining includes determining whether the digitized image has been inadvertently rotated.

5. A method according to claim 1 wherein said step of preparing includes the step of determining appropriate parameters for properly positioning the digitized images.

6. A method according to claim 5 wherein said step of determining includes determining whether a digitized image is an image of the left or right breast.

7. A method according to claim 5 wherein said step of determining includes determining whether a digitized image is a craniocaudal (CC) or mediolateral oblique (MLO) projection.

8. A method for processing film mammograms, said method including the steps of:

scanning a set of film mammograms, thereby to obtain digitized images of the film mammograms;

storing the digitized images in a memory;

determining, for each digitized image, if the image represents a left or right breast;

preparing the digitized images for display by performing an analysis of the images in order to determine the projection of each digitized image; and

using the determined breast side and projection of each image to display the digitized images according to a pre-selected position irrespective of the order in which the film mammograms were scanned.

9. A method for processing film mammograms, said method including the steps of:

scanning a set of film mammograms, thereby to obtain digitized images of the film mammograms;

storing the digitized images in a memory;

preparing the digitized images for display by performing an analysis of the images in order to determine if each image is in standard orientation; and

using the analysis of the image to display the digitized images in the standard orientation irrespective of the orientation in which the film mammograms were scanned.

10. A method according to claim 9 wherein said step of preparing includes the step of determining if the image was scanned after being inadvertently flipped.

11. A method according to claim 10 wherein said step of preparing, further includes the steps of:

providing a binarized digitized image;

removing the regions of the breast and muscle tissue from the image;

determining the distance between each of the binarized pixels in a selected corner of the digitized image having a value of "1" and the nearest pixel having a

value of "0", the corner selected being the corner where a patient identification label is likely to be located based on a previous determination of breast side and the standard position of a label in an image;

choosing the maximum distance found in said step of determining the
5   distance; and

comparing the maximum distance to a predetermined threshold value thereby to determine whether the film was inadvertently flipped when scanned and whether there is a label in the corner selected.

10   12.   A method according to claim 11 further including the step of correcting for the flipped image by correctively flipping the image in a direction opposite to the original improper flip.

13.   A method according to claim 11 further including the step of correcting for
15   the flipped image by flipping the image and additionally, if required, rotating the image.

14.   A method according to claim 10 wherein said step of preparing further includes the step of determining if the image was scanned after being inadvertently
20   rotated.

15. A method according to claim 14 wherein said step of determining further includes the steps of:

providing a binarized digitized image;
25   removing the regions of the breast and muscle tissue from the image;

removing a previously located label from the image;

determining the size of the largest bright objects in the upper half of the image and the largest object in the lower half of the object; and

comparing the size of the largest bright object in the lower half of the image
30   and of the largest bright object in the upper half of the image against a predetermined value, wherein when the object in the lower half exceeds the

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predetermined value and the object in the upper half does not, a tag is located in the lower half of the image establishing that the image has been rotated.

16.   A method according to claim 15 further including the step of correcting for the inadvertently rotated image by correctively rotating the image.

17. A method for determining if film mammograms have been improperly flipped and rotated prior to feeding the film mammogram into a scanner for providing digitized images, the method including the steps of:

providing a binarized digitized image;

removing the regions of the breast and muscle tissue from the image;

determining the distance between each of the binarized pixels in a selected corner of the digitized image having a value of "1" and the nearest pixel having a value of "0", the corner selected being the corner where a patient identification label is likely to be located based on a previous determination of breast side and the standard position of a label in an image;

choosing the maximum distance found in said step of determining the distance;

comparing the maximum distance to a predetermined threshold value thereby to determine whether the film was inadvertently flipped when scanned and whether there is a label in the corner selected;

removing the previously located label from the image;

determining the size of the largest bright objects in the upper half of the image and the largest object in the lower half of the object; and

comparing the size of the largest bright object in the lower half of the image and of the largest bright object in the upper half of the image against a predetermined value, wherein when the object in the lower half exceeds the predetermined value and the object in the upper half does not, a tag is located in the lower half of the image establishing that the image has been rotated.

18. A method for scanning film mammograms after a crash of the system performing

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the scanning, said method including the steps of:

    providing a queue file listing examinations submitted but not fully scanned, each line of the listing having a counter prefix (CP);

    determining if there are examinations listed in the queue;

5   determining if the counter prefix is zero for the first line;

    removing the first examination from the file if its CP>0 and ejecting all scanned films related to that examination; and

    processing remaining queued examinations in the file.

10   19. A method according to claim 18 wherein said step of providing includes the step of generating a queue file prior to a crash of the system, said step of generating further including the steps of:

    entering examination data to the file, setting CP to 0;

    scanning the examination films, increasing the CP by one for each film;

15   determining if the CP for the examination is equal to 4;

    removing the examination from the file if CP=4;

    checking for a separator film if CP is not 4; and

    deleting the examination from the file if a separator file is found during the step of checking.

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    20. A method according to claim 19 further including the steps of:

    deciding if previously queued examinations are to be processed prior to the step of determining if the counter prefix is zero;

    processing new examinations if it is decided not to process queued

25   examinations; and

    returning to step of determining if the counter prefix is zero if it is decided to process queued examinations.

    21. A method for scanning film mammograms and handling scanning failures, said

30   method including the steps of:

    determining if an examination is a failed examination using predetermined

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criteria;

creating a failed file for all examinations that have failed;

ascertaining if there are failed examinations in the failed file;

filling in information for a new examination using information stored in the

5   failed file; and

processing the examination.

22. A method according to claim 21 further including the step of:

entering examination data manually if in the step of ascertaining it has been

10   determined that there are no examinations in the failed file; and

returning to the step of processing.

23. A method according to claim 22 wherein said step of entering data manually is effected even when there is data in the failed file.

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24. A method according to claim 21 wherein the failed file is created by a method including the following steps:

scanning a series of film mammograms;

determining if the scanning is a failure;

20   ejecting all films if the scanning is determined to be a failure; and

adding the failed examination to the failed file.

25. A method according to claim 21 further including the step of:

processing continues normally if the scanning is not deemed a failure in the

25   step of determining if the scanning is a failure.

26.   A workstation system for scanning film mammograms, said system including:

a scanner operative to receive and digitize film mammograms from a patient;

30   processing means for receiving digitized images from said scanner, said processing means being operative to evaluate the digitized images of the film

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mammograms so as to detect suspicious lesions therein and also operative for storing said digitized images;

wherein said processing means is further operative to analyze, orient and position the digitized images according to a pre-selected presentation scheme irrespective of the order and orientation in which the film mammograms were scanned by the scanner; and

output means in communication with said processing means for outputting said digitized images in the pre-selected presentation scheme.

27. A workstation system according to claim 26 wherein said output means is a printer in communication with said processing means, said printer operative to produce a printout of the digitized images' identifying data and output data relating to the patient, said printout of the images being presented according to the pre-selected presentation scheme.

28.A workstation system according to claim 26 wherein said output means is a display in communication with said processing means, said display operative to display the digitized images according to the pre-selected presentation scheme.

29.A workstation system for scanning film mammograms, said system including:

a scanner operative to receive and digitize radiological film mammograms from a patient;

processing means for receiving digitized images from said scanner, said processing means being operative to evaluate the digitized images of the film mammograms so as to detect suspicious lesions therein and also operative for storing said digitized images;

wherein said processing means is further operative to recognize and indicate failed examinations when entering patient data and scanning film mammograms; and

output means in communication with the processing means for displaying information that an examination has failed.

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30.   A workstation system as in claim 29 wherein said output means is a display.

5   31.   A workstation system as in claim 29 wherein said output means is a printer.

32.   A workstation system for scanning film mammograms, said system including:

10   a scanner operative to receive and digitize radiological film mammograms from a patient;

processing means for receiving digitized images from said scanner, said processing means being operative to evaluate the digitized images of the film mammograms so as to detect suspicious lesions therein and also operative for

15   storing said digitized images;

wherein said processing means is further operative to allow start up of the system after a system crash using pre-crash entered data obviating the need for reentering such data;

output means in communication with the processing means for displaying

20   information relating to the pre-crash entered data.

33.   A workstation system as in claim 32 wherein said output means is a display.

25   34.   A workstation system as in claim 32 wherein said output means is a printer.